

I-PAT[®]

Innovative, automated inline screening solution

BENEFITS:

I-PAT[®] (Inline Defect Part Average Testing) runs on KLA's 8 Series high productivity and Puma[™] laser scanning inspection systems as a fully automated solution. I-PAT identifies die with outlier defect populations across critical process steps, helping automotive chipmakers:

- Remove at-risk chips (chips with potential reliability failures) in the fab before they enter the supply chain
- Improve decisions on which chips meet automotive quality standards through combination with end-of-line electrical test data
- Reduce the rates of overkill (incorrectly calling a good chip bad) and underkill (incorrectly calling a bad chip good)

COMPONENTS INTEGRATED IN I-PAT SOLUTION:

- KLA's patterned wafer inspection systems produce the inline defect data needed for die-level screening. Through high speed, low cost inspection at required sensitivity, the 8 Series and Puma inspectors find defects across 100% of lots and 100% of die for critical process layers.
- The Defect DNA[™] engine extracts comprehensive defect characteristics during runtime on the inspection systems. The digital fingerprint of each defect plays a key role in understanding whether or not a defect will cause future reliability issues.
- I-PAT Analyzer powered by SPOT[™] leverages customized machine learning algorithms to analyze Defect DNA and return prediction results.
- Klarity[®] Defect compiles prediction results from multiple process layers and performs statistical outlier analysis. A reliability index per die is calculated to determine which die should be considered high risk and removed from the supply chain.

APPLICATIONS:

- Inline die-level screening
- Independent check of end-of-line electrical test results



MARKETS:

Chip manufacturing

automotive, IoT, 5G, consumer electronics, industrial (military, aerospace, medical), data centers

PLATFORM:

- Customizable
- Future extendibility to other KLA systems

SUPPORTED INSPECTORS:

- KLA's 8 Series high productivity patterned wafer inspectors
- KLA's Puma[™] 9850 and Puma[™] 9980 laser scanning patterned wafer inspectors

MORE INFORMATION: www.kla.com/solutions/automotive#i-pat